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Title	Gestational weight gain is often excessive and early in pregnancy
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Reviewer 1	Dr. Hiten Mistry
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General comments (author response in bold)	Overall this is a well written paper and flows in a logical order summarising and discussing the main outcomes of this study. However, there are some points that need to be addressed; they are as follows: **We thank the reviewer for their kind remarks.** Introduction 1. This is written to the correct standard and covers the main details required for this study. 2. Methods and Results The methods are written to a good standard with a suitably detailed statistical analysis section. 3. Did all the women included in the study have a normal birth? It is a shame the authors did not look at the link between GWG and associated conditions such as gestational diabetes, pre-eclampsia and fetal outcomes such as birthweights, placental weights etc… as this would have strengthened the manuscript. **This is an excellent point. Unfortunately maternal health outcomes during pregnancy are not available for this cohort. Since our cohort consists of only full term delivery, we analyzed associations between being below, meeting or above the GWG recommendation and having a SGA or LGA baby.** **IOM Guideline adherence N (%)** **Small for gestational age, n (%)* P-value** **(χ2 test) Large for gestational age P-value** **(χ2 test)** **0.0004 < 0.0001** **Below 240 (17.6) 39 (16.2%) 6 (2.5%)** **Met 450 (33.0) 43 (9.5%) 17 (3.8%)** **Above 676 (49.5) 50 (7.4%) 67 (9.9%)** **Total 1366 132 (9.7%) 90 (6.6%)** *** Column percentage** **We have included information on these analyses in the statistical analysis part of the Methods section (lines 80 – 84) and have incorporated these results into the Results (lines 131-134) and Discussion (lines 169 - 171) sections** Discussion/Conclusion 4. This reads well and covers a sound discussion of the results in this study and summarises other related studies in relation to the present study. 5. Again, if the authors can link this in with any complications in the study, this would strengthen the manuscript. **We hope that our addition of some infant outcomes now strengthens our paper.**
Reviewer 2	Dr. Catherine Hankey
Institution	University of Glasgow, School of Medicine, Glasgow, UK
General comments (author response in bold)	1. Can the authors actually state the guidance Health Canada advocated for weight gain in pregnancy, either now or in the past. This would be very useful for the reader, to set the scene. **We agree with the reviewer that this information would strengthen our manuscript for the reader. We have added this information as a text box.** **Box 1 Description of the ranges of total and weekly rate of GWG according to Health Canada's recommendations by pre-pregnancy BMI category. Health Canada's recommendations are exactly the same as those from IOM.** 2. Internationally, the IOM guidance are advocated in the absence of other guidance. It would be useful to explain any differences between IOM and Health Canada recommendations. **Health Canada adopted the IOM guidelines exactly as they are, and we have stated in line 25-26 that:** **"In 2010, Health Canada adopted and disseminated the updated guidelines for**

	gestational weight gain (GWG) that had been developed by the Institute of Medicine". 3. Furthermore, it should tell about which of the population for the Apron study. Can they be considered as representative of their parent population? **We have added in a representativeness statement to the limitations section to address this and the similar comment from the editor (Lines 215 - 218)** 4. Are most participants Caucasian? **Yes. We have added in proportions to the characteristics in table 1 to make this clearer to the reader. The proportions of Caucasian, Asian and others in our study are 80%, 11% and 6%, respectively, 2% women did not report ethnicity.** 5. Why were adults recruited <27 weeks gestation? Surely this is quite late to have recruited patients, especially if the study aimed to look at weight gain trajectories. Can this be justified? The use of self-reported weight and height appears to be a major limitation, as the baseline value. The issues associated with self-reported weight are well recognized. The text below does not recognise these short comings. "Classification into normal and overweight categories using self-reported vs measured values was accurate in approximately 86% of women." **The main objective of this prospective cohort study was not to assess trajectories of GWG, although these data permit the analysis of this.** **We agree that 27 weeks gestation could be considered late for our research question, however, women were recruited from health clinics which they often visit in their 2nd trimester in the Canadian maternal health care setting. Therefore the inclusion criteria for our study was that they were either in 1st or 2nd trimester which is <27 weeks. We have added information (lines 96-97) on the gestational age at recruitment: the median is 16.6 weeks into pregnancy (interquartile range 14 – 20.6 weeks).** **With regards to self-reported data, the height data was measured by trained study staff and not self-reported. We agree with the reviewer that self-reported weight data at pre-pregnancy is a limitation however, we attempted to mitigate this as much as possible by carrying out a sensitivity analysis and a simulation study. We have amended the limitations section to highlight that we accept this limitation but also that our sensitivity analysis suggested that we have likely underestimated the excessive GWG in our sample (Lines 200-212)** **"Limitations** **A limitation of our study was that pre-pregnancy BMI was calculated using self-reported pre-pregnancy weight; however further analyses suggested that the data were reasonable. BMI was calculated using measured height and weight for 528 participants who were recruited during the first trimester, where weight gain should be minimal. Women who self-reported to be obese were highly accurate (99% according to measured BMI). The accuracy of self-reported normal and overweight was reasonable at around 86%, with over 10% in each group belonging to the next higher weight category. The self-reported underweight group had the lowest accuracy (71%). Self-reported highest weight during pregnancy was missing in 307 women and for these women their measured weight in the third trimester was used as a substitute. Sensitivity analysis and simulation study were carried out to investigate the implications of these procedures. Our results indicate that the proportion of those who exceeded both total and rate of weight gain increased in all pre-pregnancy BMI categories, suggesting that the results reported in our study are conservative estimates of the true proportions of excessive weight gain"** 6. Often outliers, who are gaining too little or too much weight, have a reason for this, an explanation if you like. Did the authors collect any such explanatory data? **We agree with the reviewer however, exploring the clinical underpinnings of the inadequate or excessive weight gain was beyond the scope for this study. We have included a sentence in the 'Explanation' section (Lines 177-179)** **"It is possible that there were clinical explanations for some of the excessive or inadequate GWG observed in this study, however as an observational study it was not an objective to explore clinical underpinnings, more research in this area is warranted"** 7. Some quite obvious statements like "all women continued to gain weight through pregnancy". **We have amended this sentence and reformatted the paragraph so that it is embedded in context, we hope this is now clearer for the reader (line 186-191)** **"Historically, the pattern of GWG that has been most commonly described is sigmoidal, accelerating between the 2nd and 3rd trimesters and plateauing in late pregnancy 6,22 with fetal growth slowing in the final weeks of**

	gestation.23 However, there is some evidence from earlier studies to suggest that maternal weight in many women may continue to increase up until delivery.24,25 This is observed in our data on contemporary pregnant women: women in all BMI groups continued to gain weight through to the end of pregnancy (Figure 4).” 8. A useful piece of work, but this as is, is long and quite repetitive. **We have amended the discussion section in particular and removed words where possible, we hope the reviewer finds the paper more streamlined.** 9. Little comparison with other such studies? What else has been done in this area? **We are sorry the reviewer felt this given the contrasting remarks made by the first reviewer (comment #4). We revised the discussion section to include a subsection “Explanation and comparison with other studies (line 155)”** **We have also included additional comparison with a very recent, world-wide study of GWG in normal weight women (Lines 160-162) and we hope this provides more context.** **“Additionally, in a very recent study of GWG in normal weight women with low-risk pregnancies, across seven Countries world-wide, the average GWG was 13.7kg, which is consistent with the recommendations released by Health Canada. 19”**